VESDA®

Troubleshooting Guide

August 1, 2007

Document Number: 10257_04

Part Number: 30011

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Document Conventions

The following typographic conventions are used in this document.

Convention	Description
Bold	Used to denote: emphasis Used for names of menus, menu options, toolbar buttons
Italics	Used to denote: references to other parts of this document or other documents. Used for the result of an action.

The following icons are used in this document

Convention	Description
	Caution: This icon is used to indicate that there is a danger to equipment. The danger could be loss of data, physical damage, or permanent corruption of configuration details.
	Warning: This icon is used to indicate that there is a danger of electric shock. This may lead to death or permanent injury.

	Warning: This icon is used to indicate that there is a danger of inhaling dangerous substances. This may lead to death or permanent injury.

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Document Number: 10257_02
Part Number: 30011

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1.1 Scope

The VESDA Troubleshooting Guide helps understand the faults that may arise from using VESDA laser detectors and how to rectify these faults. If you are having problems with a pipe network rather than a detector, please see the VESDA *Pipe Network Installation* and *Maintenance* guides.

This guide is written for those involved with the maintenance of VESDA laser detectors.

It is assumed that people troubleshooting a VESDA laser detector are knowledgeable about the local codes and standards. It is recommended that you attended accredited VESDA training before attempting to troubleshoot problems with a detector.

1.2 Introduction to VESDA Troubleshooting

It is possible that occasionally a VESDA Laser System may indicate certain faults. It is normal for a new system to highlight factory defaults and air flow faults. These are rectified as part of the setup and commissioning process. Faults that may arise in the course of normal operations have been identified and this guide provides information on how to troubleshoot and rectify those faults.

Faults can be identified and rectified through a physical check, or by using the VESDA diagnostic tools such as the LCD Programmer or VESDA PC Software.

1.3 Troubleshooting VLP, VLS & VLC

Faults on VESDA LaserPLUS (VLP), VESDA LaserSCANNER (VLS), or VESDA LaserCOMPACT (VLC) systems are reported through the display modules. If connected, the faults will also be reported on an LCD Programmer or on the VESDA PC Software. Information on the fault is signalled through one of two fault relays - minor and urgent (by default relay K2 and K3). All faults are logged into the event log giving the time, date and the details of the fault.

When a fault occurs the relevant LED(s) will be lit on the display module. Faults can also be seen in VSC.

Fault LEDs

- **URGENT** - When lit, this LED indicates a serious fault requiring immediate attention
- **SYSTEM** - When lit, this indicates a fault effecting the network
- **ZONE** - If this LED is lit it indicates a VESDA Zone fault in the display module
- **POWER** - If the GPI Function is used, and this LED is lit it indicates a fault in the power supply
- **NETWORK** - A communications fault on VESDAnet will cause this LED to be lit
- **AIRFLOW** - Higher or lower than acceptable levels of air flow through the inlet pipe is indicate.d when this LED is lit
- **FILTER** - This LED is lit when the air filter requires changing

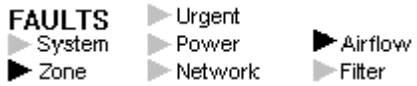

Figure 1 - Example of an airflow fault reported on a display module

Fault Finding with a LCD Programmer

The LCD Programmer reports individual device faults. The faults are reported in the status screen and are clearly identified with a “F” icon against the fault. Details of the faults can be interrogated through the “status” option of the respective device. For further details please refer to the VESDA *LCD Programmer Product Guide*.

Fault Finding with VESDA PC Software

The VESDA PC Software displays a fault on the active event list screen as these occur. The active event list screen displays the date and time of the fault, the serial number of the device on which the fault has occurred, the zone number, fault number, and a description of the fault. For detailed information about a fault access the device tree menu, highlight the device, and select device information. This will display the details of the fault.

VSC automatically stops displaying faults once the fault is cleared. When a fault occurs VSM4 displays the fault in the active event list screen and the status bar at the bottom of the screen. A warning beeper is activated in the computer hosting VSM4 (provided the computer has a sound card). The beeper will continue to sound until the fault is acknowledged.

For further details on PC Software please refer to the *online help*.

Fault Reporting Through Relays

VESDA devices are often interfaced with Fire Alarm Control Panels (FACPs) or building management systems and may not be connected to display modules. In such instances the fault relays signal the fault to the FACP or the building management system which then reports the fault.

List of Faults

The table below lists all the faults that may occur in a VESDA VLP, VLS or VLC. The table contains the fault number, description, cause, and action required to fix the fault. The “LED Key” column refers to the illustrations in the *LED combinations for fault reporting on a display module* on page 15.

No.	Fault Description	LED Key	Cause	Action
0.	Aspirator failed	A	The Detector’s aspirator is not working.	Call your VESDA support person to replace the aspirator.
1.	Power supply battery failed	B	There has been a loss of battery power.	Replace battery.
2.	Comms fault on port A	C	There is a communications fault at port A.	• Check that the wiring is correct. Tighten connections or repair any break in the wiring. Refer to the detector manual for details. • The location of the fault can be traced because the devices on either side of the loose connection or broken wire will both report the fault. • The device that reported the fault can be determined using the Status screen on the LCD Programmer. For single detector systems, check that the two VESDAnet connectors on the termination card are connected together. Also switch the power off and check all internal connections. • If a system is intentionally wired as an open-ended loop this fault will continue to occur unless the devices on each end of the loop have been configured as open-ended using the programmer. Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help.*
3.	Detector PIC failure	G	The detector processor board has a hardware fault.	Call your VESDA support person to replace the detector chassis. This fault is generated when the device is connected to the intelligent power supply unit.
4.	Filter removed	J	The air filter has been removed from the detector.	The filter should be replaced.

No.	Fault Description	LED Key	Cause	Action
5.	Reference detector loss	I	The detector has not received any messages from its configured reference detector.	Check to see that the detector is configured to look for the correct reference detector. If this is OK, call your VESDA support person.
6.	Power supply DC output failure	F	The power supply has a hardware failure.	Call your VESDA support person to repair or replace the power supply. **Note:** This fault relates to the VESDA intelligent power supply unit. For other power supply units refer to respective manufacturer's manuals
7.	Software fault found	G	The software is malfunctioning.	Call your VESDA support person.
8.	Aspirator speed control failure	D	The aspirator cannot continue to run at set speed, because: The set rpm is outside the operating range. Either the aspirator or the speed sensor have failed.	• Set speed should be as indicated by ASPIRE2. • Call your VESDA support person
9.	Comms fault on Port B	C	There is a communications fault at port B.	• Check that the wiring is correct. Tighten connections or repair any break in the wiring. • The location of the fault can be traced because the devices on either side of the loose connection or broken wire will both report the fault. • The device that reported the fault can be determined using the status screen on the LCD Programmer. For single detector systems, check that the two VESDA*net* connectors on the termination card are connected together. • If a system is intentionally wired as an open-ended loop this fault will continue to occur unless the devices on each end of the loop have been configured as open-ended using the programmer. Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help*

No.	Fault Description	LED Key	Cause	Action
10.	LED card on display not found	I	A display processor is configured to have a display card but cannot find it (or vice-versa). This may be due to a failed connector or an error in the display configuration.	Check that the display card is plugged in then turn the power supply off and on. If the fault persists call your VESDA support person to have the display card replaced.
11.	Filter approaching capacity	E	The air filter is approaching its capacity. This is based on the amount of dust detected or age of the filter.	The filter must be replaced and the filter counter reset.
12.	Zone setup = factory defaults	G	The common setup area on the reporting device has either not been altered from the factory defaults or has reverted to the factory defaults.	The fault must be cleared by calling the administrator to select ‘Defaults OK’ from the factory defaults menu.
13.	More than one detector in zone	G	An error in the system configuration has occurred and more than one Detector has been detected in the zone.	This fault will recur every minute until the fault is cleared. Ensure that each detector is allocated a different VESDA Zone. If the fault continues call your VESDA support person.
14.	Flow sensors = factory defaults	I	The flow sensor calibration area on the detector has either not been altered from (or has returned to) the factory defaults.	Contact your VESDA support person to return the detector for factory calibration
15.	AC mains failure	F	The source supplying AC power has failed, or a fault with an external PSU has been signalled through the GP Input on the VESDA detector.	Restore the AC power/batteries. Ensure the GPI mains monitoring option has not been incorrectly set. If the fault persists call your VESDA support person.

No.	Fault Description	LED Key	Cause	Action
16.	Relays not found	G	A display or a detector is configured to have a relay card but cannot find it (or vice-versa). This may be due to a failed connector or an error in the display configuration.	Once the fault is corrected this fault can be cleared by turning the power supply off and on or pressing the reset button. Ensure the number of relays configured match the number of installed relays. If the fault persists call your VESDA support person.
17.	No comms from detector	G	A display has not received the regular 'health check' message from its detector. The detector may not be configured correctly or the wiring may be faulty. Alternatively, the detector in the zone may have failed.	Call your Administrator to check the configuration of the system. Arrange for the wiring to be checked. Refer to the detector manual. If the configuration and wiring are OK, call your VESDA support person.
18.	Too many displays in zone	I	There may be more than 20 devices in the zone.	Call the system Administrator to alter the number of devices configured in this zone.
19.	Flow sensor failure pipe 4	D	The flow sensor on pipe 4 has failed.	Check the flow sensor cable loom is properly connected between the main chaise and the pipe inlet manifold. If fault persists, call your VESDA support person to replace the flow sensor and manifold.
20.	Flow sensor failure pipe 3	D	The flow sensor on pipe 3 has failed.	Refer to fault 19
21.	Flow sensor failure pipe 2	D	The flow sensor on pipe 2 has failed.	Refer to fault 19
22.	Flow sensor failure pipe 1	D	The flow sensor on pipe 1 has failed.	Refer to fault 19
23.	Laser signal too low	G	The detector's pre-processor has detected a loss of smoke level signal.	Call your VESDA support person for a replacement detector.

No.	Fault Description	LED Key	Cause	Action
24.	Cannot find display/relay	G	One of the displays in a detector's zone has not sent its regular health check message. This will occur if the display has failed or has been disconnected.	• If the display has been disconnected or a new one installed use the rebuild list option to clear the fault. • If the display has failed, call your VESDA support person to repair or replace the display. Do not use rebuild list.
25.	Comms on Port A while open-ended	C	Devices on the system can be configured as open-ended on one port. If a device such as an LCD Programmer or a HLI is attached to this port this fault will be reported. This fault will also be reported if there has been an error in the system configuration.	• If this fault is due to the temporary plugging in of an LCD Programmer or HLI, the fault will be cleared when the device is removed (If the devices have been programmed as non-latching). If however the devices have been programmed as latching it is necessary to reset after the fault condition is removed. • Check that if there is communications on both A and B ports, that open port should be set to none.
26.	Comms on Port B while open-ended	C	Devices on the system can be configured as open-ended on one port. If a device such as an LCD Programmer or HLI is attached to this port this fault will be reported. This fault will also be reported if there has been an error in the system configuration.	See Fault 25
27.	AutoLearn aborted	G	AutoLearn has been aborted/interrupted before the set time	After the cause of the interruption has been determined, AutoLearn can be restarted.
28.	Scanner option misconfigured	G	A non-Scanner display has been put into a zone with a scanner detector or vice versa The scanner valve cable is disconnected	Check that all displays in a zone match the detectors in that zone. That is, if the detector in a zone has the scanner option all displays for that zone must be scanner displays Ensure the scanner valve cable is connected to the M.P.C.

No.	Fault Description	LED Key	Cause	Action
29.	Manufac-turer setup corrupted	G	The manufacturer setup on the reporting device has either not been altered from the factory defaults or has reverted to the factory defaults.	Call your VESDA support person.
30.	Relay config = factory defaults	G	The part of the setup that determines which relays correspond to which condition has not been altered from default settings, or has reverted to the defaults. This may be because corruption of the system has been detected.	Refer to the LCD Programmer guide or the VESDA PC Software online help for details on how to accept the factory defaults. If the problem persists, call your nearest VESDA support person. **Note:** Note: If this fault is due to a scanner display's zone having been changed, set-ting the relay assignment to that for the new zone will clear the fault.
31.	Relay state = factory defaults	G	The part of the Relay setup that deter-mines the startup set-tings has not been changed from the default settings or has reverted to these set-tings.	Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help* for details on how to accept the factory defaults. If the problem persists, call your VESDA support person.
32.	Detector clocks not synchro-nized	I	The internal clock on all devices in the sys-tem are checked daily. If the time on any device has drifted by more than one minute this fault will be reported.	The system Administrator should check the time settings on the devices. Set the new time as a global function. If this drift in time continues to occur, call your VESDA support person. This fault may occur on the first day of use if the clocks are not synchronized under the set date and time menu of the sys-tem all devices menu.
33.	User list = factory defaults	I	The user list has not been changed from the default settings or has reverted to the defaults. This may be because corruption of the system has been detected.	The system Administrator is required to OK the use of the defaults or to alter the user list. Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help* for details.

No.	Fault Description	LED Key	Cause	Action
34.	Detector Setup = factory defaults	G	The Detector setup has not been changed from the default settings or has reverted to the defaults. This may be because corruption of the system has been detected.	The system Administrator is required to OK the use of the defaults. Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help*. If the problem persists, call your VESDA support person. **Note:** Note that the detector alarm thresholds and other configurations are kept in the detector setup area. If this fault occurs you will have to reset all detector configuration parameters.
35.	Programmer Setup = factory defaults	K	The programmer settings have not been changed from the default settings or has reverted to the defaults. This may be because corruption of the system has been detected.	The system Administrator is required to OK the use of the defaults or to alter the settings. Refer to the *LCD Programmer Guide*. If the problem persists, call your VESDA support person.
36.	Event Log corrupt	I	The detector event log has been corrupted and has been cleared.	If this fault persists call your VESDA support person.
37.	Detector cal = factory defaults	G	The detector calibration has not been changed from the default settings or has reverted to the defaults. This may be because the data has been detected as being corrupt.	Call your VESDA support person. Your system may not detect smoke correctly.
38.	Detector EPROM failure	I	The detector data storage area has not been changed from the default settings or has reverted to the defaults. This may be because the data has been detected as being corrupt.	Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help* for instructions on how to accept the factory defaults. If this problem persists call your VESDA support person. Note that the filter life information is kept in this storage area. If this fault occurs, the filter life count will be set to zero.
39.	Urgent high airflow pipe 4	A	The airflow in the pipe of the detector has exceeded the ‘High Urgent’ threshold. This may be because the aspirator setting has been changed or because there is a break in the pipe.	If the aspirator setting has been changed the system Administrator must be called to Normalize the air flow. If this does not rectify the problem a contractor should examine and repair any broken air sampling pipes.

No.	Fault Description	LED Key	Cause	Action
40.	Minor high airflow pipe 4	D	The airflow in the pipe has exceeded the 'High Minor' threshold. This may be because the aspirator setting has been changed or because there is a change in the flow in the pipe.	If the aspirator setting has been changed the system Administrator must be called to normalize the air flow. If the fault continues to occur a contractor should be called to examine the pipe and repair any abnormalities.
41.	Minor low airflow pipe 4	D	The airflow in the pipe has dropped below the 'Low Minor' threshold. This may be because the aspirator setting has been changed or because some sampling holes are becoming obstructed.	If the aspirator setting has been changed the system Administrator must be called to Normalize the air flow. If the problem is not the aspirator setting, call a contractor to clean the sampling points. The sampling points should be cleaned with a suit able implement.
42.	Urgent low air flow pipe 4	A	The airflow in the pipe is below the 'Low Urgent' threshold. This may be because: • the aspirator setting has been changed; or • there is a blockage in the pipe; or • all pipes may be selected as "not in use"	If the aspirator setting has been changed the system Administrator must be called to normalize the air flow. If the aspirator setting has not been changed call a contractor to check for blockages in the pipe. Check the number of pipes as selected "in use". Refer to the LCD Programmer Guide or the VESDA PC Software online Help for instructions on how to select pipes and Normalize the airflow.
43.	Urgent high airflow pipe 3	A	Refer to Fault 39	Refer to Fault 39
44.	Minor high airflow pipe 3	D	Refer to Fault 40	Refer to Fault 40
45.	Minor low airflow pipe 3	D	Refer to Fault 41	Refer to Fault 41
46.	Urgent low airflow pipe 3	A	Refer to fault 42	Refer to fault 42
47.	Urgent high airflow pipe 2	A	Refer to Fault 39	Refer to Fault 39

No.	Fault Description	LED Key	Cause	Action
48.	Minor high airflow pipe 2	D	Refer to Fault 40	Refer to Fault 40
49.	Minor low airflow pipe 2	D	Refer to Fault 41	Refer to Fault 41
50.	Urgent low airflow pipe 2	A	Refer to fault 42	Refer to fault 42
51.	Urgent high airflow pipe 1	A	Refer to Fault 39	Refer to Fault 39
52.	Minor high airflow pipe 1	D	Refer to Fault 40	Refer to Fault 40
53.	Minor low airflow pipe 1	D	Refer to Fault 41	Refer to Fault 41
54.	Urgent low airflow pipe 1	A	Refer to fault 42	Refer to fault 42
55.	Too many power supplies.	I	More than one power supply has been detected in one power zone.	Ensure “Power Supply” menu option is set to Zone 0 if a VESDA Intelligent power supply is being used. **Note:** This fault relates to the intelligent power supply unit. For other power supply units refer to respective manufacturer’s manuals
56.	Clock failed	I	The real time clock is not functioning properly.	Contact your VESDA support person to rectify the fault.
57.	Display setup = factory defaults	I	The display is operating with the default configuration.	The system Administrator is required to OK the use of the defaults. Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help*. If the problem persists, call your VESDA support person.
58.	Too many auto scans in one week	I	There have been more than 500 auto scans have taken place in a seven day period.	To clear fault reset. Increase the scan threshold by setting a higher alert threshold.
59.	Fault test	G	A fault test is currently is progress.	This fault will cease when the fault test has finished. You can clear the fault by prematurely ending the test.

No.	Fault Description	LED Key	Cause	Action
60.	Battery charger failure.	F	The power supply has a hardware failure.	Call your VESDA support person to repair or replace the power supply. **Note:** This fault relates to the intelligent power supply unit. For other power supply units refer to respective manufacturer's manuals
61.	Power Supply fuse failure.	B	The DC output fuse in the power supply has failed.	Call your VESDA support person to replace the fuse. **Note:** This fault relates to the intelligent power supply unit. For other power supply units refer to respective manufacturer's manuals
62.	Power Supply PIC failure.	B	The power supply preprocessor has failed.	Return the power supply to your VESDA support person so that it can be repaired or replaced. **Note:** This fault relates to the intelligent power supply unit. For other power supply units refer to respective manufacturer's manuals
63.	No comms from power supply.	B	A detector has not received the regular 'health check' message from its power supply. The power supply or detector may not be con figured correctly or the wiring may be faulty. Alternatively, the power supply in the zone may have failed.	Call your Administrator to check the configuration of the system. Arrange for the wiring to be checked. If the configuration and wiring are OK, call your VESDA support person to repair the power supply. **Note:** This fault relates to the intelligent power supply unit. For other power supply units refer to respective manufacturer's manuals
64.	Power Supply output relay failed.	B	One of the relays in the power supply is not functioning correctly.	Return the power supply to your VESDA support person so that it can be repaired or replaced. **Note:** This fault relates to the intelligent power supply unit. For other power supply units refer to respective manufacturer's manuals
65.	Incompatible SW version detected	K	Some of the devices on the system have different versions of software.	Call your VESDA support person to assist you in determining which software versions are compatible.

No.	Fault Description	LED Key	Cause	Action
66.	Status report period too short	K	The parameter Min Intvl has been set too low when compared with the number of devices in the system.	You must call your VESDA support person to reset the Min Intvl. Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help*.
67.	Network delay too short	K	The time allowed for a device to send a message around the network is too short.	Arrange for your VESDA support person to reset the Network Delay. Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help*.
68.	HLI Setup = factory defaults	K	The HLI is operating with the default configuration.	The system Administrator is required to OK the use of the defaults or to alter the user list. Refer to the *LCD Programmer Guide* or the VESDA *PC Software online Help*. If the problem persists, call your VESDA support person.
69.	Ref Detector has reference	G	A Reference Detector is using another Detector as a reference. Loops or chains of Reference Detectors are not supported.	Call the system Administrator to reconfigure the Reference Detector.
70.	Fault No. not in use			
71.	Fault No. not in use			
72.	LC Module setup = factory defaults	G	The LC Module is operating with the default configuration.	The Administrator should okay the use of default settings.
73.	Filter clogging warning	J	This fault will be generated if dust count exceeds dust limit or the filter Service Interval has expired.	Filter must be urgently replaced and reset filter count.
74.	Fault Rectified. Fault No. not in use			
75.	Normalization has failed	D	This fault will occur if air normalization has been unsuccessful	• Ensure at least one exhaust port is open • Check the number of pipes selected as “in use” • Re-try air normalization. If fault persists contact your Administrator • If fault occurs at commissioning ensure pipe has airflow of >20 liters per minute. The fault may be caused by surplus air from an area with a relatively high or low pressure. Consider venting the exhaust back into the protected area to balance the pressure across the detector

No.	Fault Description	LED Key	Cause	Action
76.	Filter replaced but not acknowledged	E	The filter on a Detector has physically been replaced but not acknowledged in the software.	Acknowledge filter change in software Call your Administrator to check the positioning of the filter **Note:** If a new filter has not been fitted DO NOT reset the filter monitoring data
77.	Normalization in progress	D	Normalization is currently in progress on the detector.	This fault is generated as a reminder that the detectors normalizing the air flow. This will clear when normalization completes. If the devices have been programmed as non-latching, the fault will be cleared when the device is removed. If however the devices have been programmed as latching it is necessary to reset after the fault is generated
78.	No Sliding Windows Dial- Out Dial String	I	This fault is generated if the HLI attempts to dial out without having a dial up number configured in the modem configuration	Ensure that a dial up number is con figured in the dial-out HLI
79.	Both Dial Numbers failed during a modem dial out	I	This fault occurs if the HLI fails to dial out using either of the dial up numbers configured in the modem configuration	Ensure modem is powered up and connected Ensure modem is configured to a baud rate of 19200 Test the receiving station
80.	Fault No. not in use			
81.	Fault No. not in use			
82.	Valve stuck shut on Pipe 1 Urgent	G	The Scanner Valve is not fully open and may be preventing the free flow of sampled air.	Check inlet ports for obstruction. Perform manual scan to check normal operation if cleared. Contact your VESDA support person for technical support if fault persists.
83.	Valve stuck open on Pipe 1 Minor	I	The scanner valve is stuck in the open position. The sector scan feature of the LaserSCANNER detector is non-functional	Check inlet ports for obstruction. Perform manual scan to check normal operation if cleared. Contact your VESDA support person for technical support if fault persists.
84.	Valve stuck shut on Pipe 2 Urgent	G	Refer to Fault 82	Refer to Fault 82
85.	Valve stuck open on Pipe 2 Minor	I	Refer to Fault 83	Refer to Fault 83

No.	Fault Description	LED Key	Cause	Action
86.	Valve stuck shut on Pipe 3 Urgent	G	Refer to Fault 82	Refer to Fault 82
87.	Valve stuck open on Pipe 3 Minor	I	Refer to Fault 83	Refer to Fault 83
88.	Valve stuck shut on Pipe 4 Urgent	G	Refer to Fault 82	Refer to Fault 82
89.	Valve stuck open on Pipe 4 Minor	I	Refer to Fault 83	Refer to Fault 83

Table 1 - Troubleshooting Table

Table 2 below, illustrates the combination of illuminated LEDs on a display module representing different type of faults. Each combination is represented with a letter (A to L) which corresponds to the key column in the *Troubleshooting Table* on page 15.

The Zone, Network or System LEDs are illuminated to indicate where the fault has occurred. The Urgent LED is illuminated in the event of a fault categorized as urgent (e.g. An Urgent High Airflow Fault). Power, Airflow and Filter LEDs represent faults due to power supply, airflow or the filter respectively.

LED Key			
A	FAULTS ▶ Urgent System ▶ Power ▶ Airflow ▶ Zone Network Filter	**G**	FAULTS ▶ Urgent System ▶ Power Airflow ▶ Zone Network Filter
B	FAULTS ▶ Urgent System ▶ Power Airflow ▶ Zone Network Filter	**H**	FAULTS Urgent System Power Airflow ▶ Zone ▶ Network Filter
C	FAULTS Urgent ▶ System Power Airflow Zone ▶ Network Filter	**I**	FAULTS Urgent System Power Airflow ▶ Zone Network Filter
D	FAULTS Urgent System Power ▶ Airflow ▶ Zone Network Filter	**J**	FAULTS ▶ Urgent System Power Airflow ▶ Zone Network ▶ Filter
E	FAULTS Urgent System Power Airflow ▶ Zone Network ▶ Filter	**K**	FAULTS Urgent ▶ System Power Airflow Zone Network Filter
F	FAULTS Urgent System ▶ Power Airflow ▶ Zone Network Filter	**L**	FAULTS Urgent ▶ System ▶ Power Airflow Zone Network Filter

Table 2 - LED combinations for fault reporting on a display module

The ▶ in indicates that a LED is lit.

1.4 Troubleshooting LaserFOCUS

The Instant Fault Finder function is operated by pressing the Reset and Disable buttons together. One or more segments of the Smoke Dial will be lit, indicating the fault by number. The table below provides fault details and recommended actions.

VLF Troubleshooting with Instant Fault Finder

The Instant Fault Finder function aids rapid diagnosis of faults.

Fault	Type	Explanation	Action
1	Filter	Air filter needs replacement due to dust or smoke contamination or has reached the end of its life.	Replace the air filter with a new unit remembering to reset the filter fault.
2	Aspirator	Aspirator fault has occurred.	Initially replace the aspirator. If the fault remains replace the VESDA unit.
3	High flow	High flow fault present (urgent or non-urgent). Flow readings are above user set flow limits or the detector maximum flow	Check the pipe network for breakages. Also check the suitability of the pipe network in ASPIRE2.
4	Low flow	Low flow fault present (urgent or non-urgent). Flow readings are below user set flow limits or the detector maximum flow	Check the pipe network for blockages. Also check the suitability of the pipe network in ASPIRE2.
5	Not in use		
6	External Device/Power Supply Unit	External equipment signaling a fault via the General Purpose Input.	Inspect the external device and also check that the GPI is set to the correct mode. Also check that the EOL resistor is correctly connected.
7	Interface card	Interface Card needs replacement.	Replace the Interface Card.
8	Field wiring	General Purpose Input or Interface Card wiring.	If no interface card is installed check the GPI wiring for an open circuit. If an interface card is installed refer to the card manual. Refer to *GPI* section of the *LaserFOCUS Manual*
9	AutoLearn fail	AutoLearn Smoke or Flow failed.	Repeat AutoLearn Smoke or Flow process. Inspect logs if repeated failures occur. AutoLearn Flow will fail if there is an airflow fault on the detector. Fix airflow fault and re-start AutoLearn
10	Detector failure	A fault has occurred that cannot be fixed.	Contact the supplier and replace the detector.

Table 3 - Instant fault finder diagnosis

1.5 Internal Wiring Order

When tracing for communication faults in a VESDAnet the internal connections depicted in *Wiring Configuration* on page 18 will provide a useful guide to the **exact** location of the wiring or communication fault. For example:

- Where the fault is internal (e.g. a display on a VLP-002 is reporting a comms fault on port B and the detector on port A) carefully check the internal grey cable looms for damage.
- Where the fault is in the external/field wiring to terminal B, the comms fault will be reported on Detector port B.
- Where the fault is in the external/field wiring to terminal A, the comms fault may be reported on a display, programmer or HLI depending on the particular configuration.

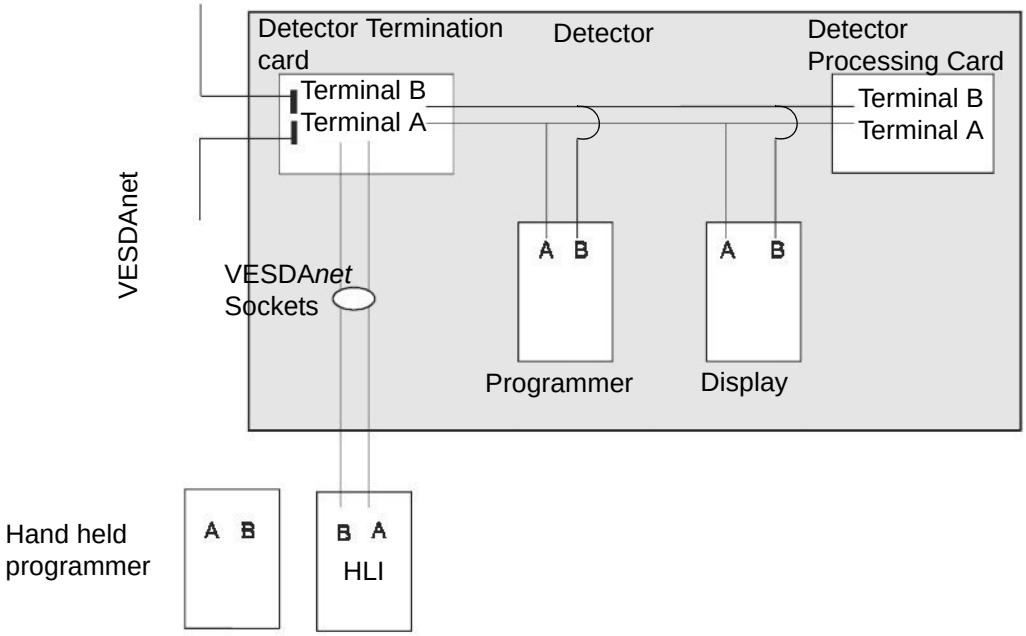

Figure 2 - Wiring Configuration

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